Learning About Learning

10/23/19

Amber Chess
Learning Specialist and Director, Office of Academic Success
Zucker School of Medicine at Hofstra/Northwell
1. True or false: When it comes to learning, metacognition (e.g., thinking about thinking) can be just as important as intelligence.

2. What is the best way to learn from some text?
   1. Read and re-read the text
   2. Explain key ideas to yourself while reading
   3. Underline key concepts
   4. Be sure to use a highlighter

3. True or false: Intelligence is fixed at birth.

4. You have a test coming up. What’s the best way to review the material?
   1. Circle key points in the textbook
   2. Review relevant points of lecture in audio format
   3. Take an informal quiz based on the material

5. To which of the following should you not tailor your learning?
   1. Learning styles (auditory, visual, etc.)
   2. Previous knowledge
   3. Interests
   4. Ability

6. True or false: Learning should be spaced out over time.

Kamenetz, A. (2017, March) You Probably Believe Some Learning Myths: Take Our Quiz To Find Out (retrieved on 9/30/19)
How well do you think you understand what good learning looks like?

• Ulrich Boser (a researcher, educator, and author) surveyed a sample of more than 3,000 Americans to test their beliefs about common learning myths. He found that the public is largely ignorant of research on learning.

• 75% of Americans rated themselves as “above average” in their ability to judge effective learning strategies.

• He calls it the, 'Been there, done that' problem. People went to school, so they have a feeling they know what works. Often they are WRONG!

• Have extra time and want to know more?
  
  Listen to Boser’s interview on the metalearn podcast where he discusses how to become an expert at anything.

  http://www.metalearn.net/podcasts/ml72-ulrich-boser
1. True or false: When it comes to learning, metacognition (e.g., thinking about thinking) can be just as important as intelligence.

- One’s ability to encode, process, store, and retrieve information is important.
- Metacognitive skills are needed to become a self-regulated learner.
- Thinking about how you are learning by setting goals, making a plan, monitoring yourself, and then reflecting to see how to improve for next time is a key component in academic success.

Based on Zimmerman’s concept of SRL from 2000.
2. **What is the best way to learn from some text?**

   - Read and re-read the text.
   - Explain key ideas to yourself while reading.
   - Underline key concepts.
   - Be sure to use a highlighter.

- Nearly 90% of respondents to Boser’s survey thought that simply re-reading material is "highly effective" for learning. It is not.

- Highlighting and underlining also aren’t so effective! “On the basis of the available evidence, we rate highlighting and underlining as having low utility. In most situations that have been examined and with most participants, highlighting does little to boost performance... it may actually hurt performance on higher-level tasks that require inference making.” (Dunlosky & Rawson et al, 2013)

- Restating the text (in your own words is best) keeps you engaged and forces you to process what you are reading. You are much more likely to remember readings by doing this.
Elaboration

Read more about elaboration as a study strategy

- Use elaborative interrogation
  [http://www.learningscientists.org/blog/2016/7/7-1](http://www.learningscientists.org/blog/2016/7/7-1)

- Elaboration and Active Learning
  [http://www.learningscientists.org/blog/2016/9/8-1](http://www.learningscientists.org/blog/2016/9/8-1)


3. **True or false:** Intelligence is fixed at birth.

- More than 25% of respondents to Boser’s survey believed intelligence is "fixed at birth".
- 71% of respondents indicated that teachers should motivate students by praising them "for being smart." This kind of praise is counterproductive. **Praising effort, rather than ability,** is far more likely to motivate students to work hard and improve.
- The brain much more malleable than it was previously thought to be!
- Carol Dweck (Stanford) research on growth mindset.
- When students believe they can get smarter, they understand that effort makes them stronger. Therefore they put in extra time and effort, and that leads to higher achievement.
Additional information on Growth Mindset

• Just like a weightlifter you must exercise and practice to make your brain grow stronger.

• The power of “yet”. (I can’t do that... yet. I don’t know that... yet. I haven’t passed that exam... yet.)

• [https://www.ted.com/talks/carol_dweck_the_power_of_believing_thet_you_can_improve?language=en](https://www.ted.com/talks/carol_dweck_the_power_of_believing_thet_you_can_improve?language=en)
4. You have a test coming up. What’s the best way to review the material?

Circle key points in the textbook
Review relevant points of lecture in audio format
Take an informal quiz based on the material

- 60% of respondents thought quizzes are not an effective way to gain new skills and knowledge.
- The opposite is true! Quizzing yourself on something you’ve just learned is a great example of active learning.
- Quizzes are a form of “active learning” that promotes better recall.
- Anki
Read more about retrieval practice as a study strategy

- **Learning how to Learn: Practicing Retrieval**
  

- **Concept Map: What Does Retrieval Practice Do?**
  
  [http://www.learningscientists.org/blog/2016/4/1-1](http://www.learningscientists.org/blog/2016/4/1-1)

- **How to Study with Flashcards**
  
  [http://www.learningscientists.org/blog/2016/2/20-1](http://www.learningscientists.org/blog/2016/2/20-1)

5. To which of the following should you not tailor your learning?

- Learning styles
- Previous knowledge
- Interests
- Ability

- Almost 90% of Boser's respondents thought that students should receive information in their own "learning style."

- One major recent review of research, among many others, stated that the authors "found virtually no evidence" for the idea.

- Your perceived learning style is probably just a preference.

- A better idea is to incorporate many learning “styles” into your studies. Try Dual Coding.
Dual Coding

Read more about dual coding as a study strategy

- Use dual coding
  
  http://www.learningscientists.org/blog/2016/9/1-1

- Use dual coding
  
  http://www.learningscientists.org/blog/2016/5/12-1

6. **True** or false: Learning should be spaced out over time.

- Many students believe cramming works. Unfortunately, in medical school it does not.
- Cramming for exams is only a short-term solution. The content crammed is stored in the short-term memory where it is accessible only in the short-term. However, this does not create the needed lasting neural connections to the material. Cramming also does not help you develop deep understanding. Content is not learned beyond the surface level and often forgotten within days.
- Findings suggest that when you are learning new information, to retain that information long term, you should try reviewing it several times over an extended period. This is referred to as spaced repetition and there is a plethora of research backing it.
- Seeing the same concept numerous times, spaced over a period rather than all at once, will aid in your ability to remember it.
- Much research supports the idea that “spaced repetition” helps you retain knowledge over the long term.
Spaced Practice

Read more about spacing as a study strategy

- Spacing your study
  http://www.learningscientists.org/blog/2016/7/21-1

- Spacing in teaching practice.
  http://www.learningscientists.org/blog/2016/4/12-1

Spaced repetition and the curve of forgetting

• https://www.youtube.com/watch?v=cVf38y07cfk

https://www.avid.org/student-learning
Questions and discussion

Amber.Chess@Hofstra.edu
References


Kamenetz, A. (2017, March) *You Probably Believe Some Learning Myths: Take Our Quiz To Find Out* (retrieved on 9/30/19)